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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,705	11/28/2000	Yoshihiro Yanagisawa	35.C13918	5179

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EXAMINER	
RAMSEY, KENNETH J	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/722,705	Applicant(s) YANAGISAWA, YOSHIHIRO
	Examiner Kenneth J. Ramsey	Art Unit 2879

-- The MAILING DATE of this communication appears on th cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) 6-8,10-12 and 14 is/are allowed.

6)☒ Claim(s) 1,2,5,9,13,15 and 16 is/are rejected.

7)☒ Claim(s) 3 and 4 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 5, 9, 13, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banno et al, patent 6,060,113, (Banno) in view of Tokai et al, patent 6,312,864 (Tokai). Banno discloses a process of forming a surface conduction emissive device comprising forming electrode pairs on a substrate, forming row wires connected to first electrodes of each pair and forming column wires connected to a second electrodes of each pair. Also, Banno discloses forming an emissive film by an inkjet process and "forming" the film by passing current through the film to create fissures, which provide an electron emissive source. Further Banno, column 42, lines 55-64, discloses that a photolithographic process may form the row and column wires. The particular photolithographic process is not taught, but it is clear that the row-directional wires are separated from the column directional wires by an insulator at each intersection in the process. Thus Banno suggests a multiple step process of first forming the row or the column wires, then the insulator, then the other of the column or row wires, wherein each step corresponds to a commonplace photolithographic step of depositing a high definition wire or insulator. Such a high definition process is known from Tokai et al, column 2, line 66 through column19-35, wherein feeder wires in a display device are be formed by depositing a photosensitive film comprising conductive metal particles, exposing and developing the film, then baking. It would also have been

obvious that, if sinterable insulator particles were substituted for conductive particles, a pattern of insulators would be similarly formed. It thus would have been obvious to one of ordinary skill in the art at the time of applicant's invention to form the wire and column wires of Banno, by the photolithographic process of Tokai since Banno suggests the use of a photolithographic process where a high definition wiring matrix is required. Now the order of the photographic steps will be discussed. Where the spacing of the row wires differs from the spacing of the column wires, the order of steps obviously should proceed with the wires which have a closer spacing than the other since a substrate which is more planar (without any prior forming of wires or spacers) provides for better resolution in the photographic process. While applicant states that Banno does not disclose that the column wires have a smaller spacing than that of the row wires, the examiner respectfully notes that the spacing of rows and columns should follow that of the pixel patterns, figures 8A and 8B. In each figure, it can be seen that the pixels have a greater row spacing than a column spacing. Only one row is shown in figure 8A whereas 6 columns are shown. In figure 8B, five rows of pixels are shown whereas seven columns of pixels are shown. Thus the column wires must be more closely spaced than the row wirings. It follows that one of ordinary skill in the art would have formed the column wires first since the planar substrate allows for a better resolution when the higher resolution column wire array is formed. As to claim 9, the examiner's Official notice in the last Office action re use of spacers is now admitted prior art. Since the flat panel display form by Banno has a similar atmospheric loading the use of spacers to support the load therein would have been obvious.

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Banno and Tokai as applied to claim 1 above, and further in view of Misutake et al, patent 5,594,296 (Misutake). Claim 15 combines the sep of forming the column wires by a photolithographic step with a step of forming the row wires by a screen printing step. Since the row wires of Banno require a lower resolution than the column wires and since the same combination of steps was employed in Misutake, column 13, line 51 through column 46, to respectively form the column and row wires, such a process would have been obvious in Banno in order to obtain a relatively high definition display at the lowest possible cost.

4. Claim 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 6-8, 10-12 and 14 are allowed.

6. The following is a statement of reasons for the indication of allowable subject matter: claims 3, 10-12 and 14 are drawn to allowable subject matter since the prior art does not teach or suggest providing row and column conductors of a field emissive display by depositing a photosensitive film through a plurality of apertures of a mask on to a substrate, selectively exposing the film deposits to form row and column electrodes. Claim 4 is allowable since although it was known to deposit the pair of electrodes by offset printing, it was not taught or suggested to combine the offset printing process with the other steps of this claim such as forming the column wires by a photolithographic step. For instance Yanagisawa et al, patent 5,996,488, taught the use of offset printing

to form large area displays not suitable to photolithographic steps, but the resolution of the display was at such a level that both the column wires and row wires were formed by the cheaper screen printing process. Claims 6 through 8 are allowable since the prior art does not teach or suggest forming the row wires with a different cross section than the column wires.

7. Applicant's arguments filed December 26, 2003 have been fully considered but they are not persuasive. As noted above, the argument that Banno does not teach or suggest the smaller spacing of the column wires is erroneous. As to the fact that Tokai does not form a matrix of wires having crossovers by a photographic step, the claims also do not require forming a crossover by a photographic step. Moreover, even though Banno teaches the forming of a matrix of wires having crossovers, they teach that either the row or column wires or both could be form photographically.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Directions for Responses

Any formal response to this communication should be directed to examiner Kenneth Ramsey, Art Unit 2879, and either
faxed to: 703-872-9319; or mailed to: Box AF
Assistant Commissioner For Patents
Washington, D.C. 20231

Technical inquiries concerning this communication should be directed to Kenneth J. Ramsey, (703) 308-2324 (voice), (703) 746-4832 (fax).

Kenneth J. Ramsey
Primary Examiner
Art Unit 2879